*2. Existing DIRECTV subscribers*

35. We assume that the subscriber fee for local-into-local via satellite is [redacted] DIRECTV will receive this incremental revenue from each existing and new subscriber who elects to take local-into-local via satellite once it is offered. Historically, DIRECTV has charged [redacted] for monthly subscription packages without local-into-local via satellite compared to packages including satellite local-into-local.

## III. Costs of Providing Local-into-local Via Satellite

36. The analysis described above shows that DIRECTV's introduction of local-into-local via satellite has a statistically significant effect on the demand for DIRECTV's services. This section of the report provides an estimate of the costs to DIRECTV of supplying local-into-local via satellite in the 60 remaining DMAs.

### A. Cost of satellite capacity

37. DIRECTV provision of local-into-local service via satellite in a DMA requires a significant commitment of satellite capacity. DIRECTV could offer local-into-local to the remaining 60 DMAs either by using its existing satellites or by purchasing a new satellite. It is important to note that, from an economic perspective, the cost of these two alternatives will not necessarily differ. While purchasing an additional satellite implies a large capital expenditure, using existing satellite capacity has an opportunity cost. Opportunity cost refers to the value of alternative uses of the satellite capacity. The profitability of such alternative uses is the opportunity cost of using the satellite capacity to provide satellite local-into-local to the remaining 60 DMAs. There is no reason to believe that the profitability of alternative uses of the satellite capacity is

lower than the cost of the satellite itself, unless those alternative uses themselves are unprofitable.

38. For example, although DIRECTV currently provides local HD service from two Ka-band SPACEWAY satellites, it is in the process of launching two new Ka-band spacecraft (DIRECTV 10 and 11) to take their place. But there are at least three uses for the SPACEWAY satellites other than the provision of SD local-into-local service. First, DIRECTV could sell the satellites to another operator, especially one interested in providing the advanced data service the spacecraft were optimized to perform. Second, DIRECTV could use the SPACEWAY satellites to launch HD local service in additional DMAs (including, perhaps, some of the 60 unserved markets) if that proves to be more highly valued by consumers than SD service. Third, DIRECTV could simply hold these satellites in reserve as in-orbit spares to ensure the continuity of service in case of a satellite anomaly, just as most other prudent satellite fleet operators do. Extending SD local service into the remaining 60 markets would foreclose these alternative uses of the SPACEWAY satellites, and thereby impose significant opportunity costs.

39. Accordingly, we estimate the cost of satellite capacity using estimates for the purchase of a new satellite. Based on interviews with DIRECTV officials, we assume that the cost of purchasing and launching a new satellite that has the capacity to provide local-into-local service to the 60 remaining DMAs is $300 million. This includes the satellite, the launch vehicle, and launch insurance.[20] Payment for the satellite would be made over the course of 30 months.

[20] Interviews with DIRECTV officials.

### B. Subscriber acquisition costs

40. Another significant cost is subscriber acquisition costs ("SAC"). SAC reflect the expenses incurred by DIRECTV for each gross addition. These costs include hardware costs, installation costs, commissions, and marketing costs. DIRECTV estimates that its SAC will be between [redacted] per gross addition.

41. The appropriate measure of SAC for purposes of our profitability analysis are subscriber acquisition costs that vary according to the number of subscribers. All the costs in SAC are variable per subscriber costs except for certain marketing costs, which are largely fixed. DIRECTV officials estimate that these fixed marketing costs have accounted for about [redacted] of SAC costs.[21] Accordingly, we have assumed the same percentage going forward and subtracted these fixed marketing costs from DIRECTV's estimates of SAC.[22]

### C. Other costs

42. A few other assumptions regarding costs were made in the financial model. These assumptions, and the basis for the assumptions, are listed below:

- *RF Uplink costs*: We include the estimated cost to build uplink facilities to send local television transmissions to satellites for retransmission back into appropriate DMAs. The RF uplink facilities receive the local

[21] Interviews with DIRECTV officials.

[22] Additional technology transition costs would be incurred for new gross additions. These incremental costs reflect the cost difference between the Ku-band and Ka-band equipment. *See* Appendix J.

broadcasts via the backhaul network from individual local collection facilities ("LCFs").[23]

- *Broadcast and LCF capital*: DIRECTV provision of satellite local-into-local service requires investments in equipment to collect local broadcast signals so they can be transmitted to RF Uplinks via a backhaul network.[24]

- *Recurring backhaul expense*: We include recurring backhaul expenses, which reflect the cost of transporting the local broadcast signal from the LCF to the RF Uplink where it can be transmitted to the satellite for local-into-local retransmission into the DMA.[25]

- *Technology conversion costs:* The satellite DIRECTV would launch in order to provide satellite local-into-local would be a Ka-band satellite. Since existing DIRECTV subscribers in the 60 DMAs are served by Ku-band satellites, additional technology transition costs would be incurred for upgrading most current subscribers to Ka-band technology. This includes a special service visit to replace the ODU, one or more boxes, and the multi-switch.[26]

[23] *See* Appendix K.

[24] [redacted] Broadcast and LCF capital is determined on a market-by-market basis based on Interviews with DIRECTV officials. *See* Appendix K.

[25] *See* Appendix N.

[26] Technology conversion costs are estimated for each DMA.

- *Programming costs:* We include estimates of license fees paid by DIRECTV to programmers.[27]

- *Satellite local-into-local license costs*: As local broadcast stations have increasingly elected retransmission consent over must-carry status, they have negotiated license fees from MVPDs who carry their channels.[28]

- *Other customer-related costs*: Customer-related costs include customer service, billing, remittance processing, and field operations installation costs, and are calculated as a percent of revenue.[29]

## IV. Financial Factors

### A. Discount rate

43. The net present value (NPV) of a project is derived by discounting the future cash flows by an appropriate discount rate. The discount rate reflects the time value of money, because investors prefer to receive a fixed monetary payment today rather than in the future. The rate at which a firm discounts its cash flows is the minimum acceptable expected return on its investments. An important factor that determines the minimum required return before a firm undertakes an investment is the level of risk associated with the investment. All else equal, the more risky is an investment, the higher will be the required return.

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[27] *See* Appendix N.

[28] The model assumes that the average license fee increases over time as set forth in Appendix N.

[29] Interviews with DIRECTV officials. *See* Appendix N.

44. A starting point for estimating the appropriate discount rate for a project is a firm's weighted average cost of capital (WACC). Because the WACC reflects the firm's cost of raising capital, it is the minimum required return on its investment. DIRECTV's weighted average cost of capital (WACC) is [redacted][30]

45. However, a common error in choosing a discount rate for a project is to use a WACC that applies to the entire firm. The WACC reflects the risks of a firm as a whole, not the incremental profitability of a given project. Thus, using the WACC as the discount rate for an individual project is not an appropriate approach where the risk of a particular project differs markedly from that of the firm as a whole. This is because individual projects can be significantly more risky than the firm as a whole. Accordingly, it is often appropriate to use discount rates for individual projects that are higher than a firm's WACC.

46. I understand from discussions with DIRECTV officials that DIRECTV sometimes evaluates individual projects using discount rates that are higher than its WACC. Accordingly, in deriving our primary estimates of profitability, we assume a discount rate of [redacted] In Section VI.C., we evaluate the sensitivity of our net present value estimates to this assumption by also using values of [redacted] (approximately DIRECTV's WACC, which is an absolute lower bound for the discount rate) and [redacted]

[30] *See* Appendix M.

**B. Timing of cash flows and terminal value**

47. The financial model also requires estimating the timing of all of the incremental cash flows resulting from the project. In particular, the model requires the timing of investments and the launch of local-into-local service via satellite. We assume that it takes 30 months from the purchase of the satellite to the commencement of local-into-local satellite service. We understand from discussions with DIRECTV officials that this is the estimated timeframe to purchase, configure, and launch a satellite and begin offering satellite local-into-local service in the 60 remaining markets. Accordingly, we assume that revenues from the service will begin 30 months after DIRECTV begins to make the investments in the satellite.[31]

48. We forecast 4.5 years of revenues and costs from offering satellite local-into-local service in the 60 DMAs. Combined with the 30 months required to launch the service, the financial model forecasts a total of 7 years of cash flows. Assuming that DIRECTV would begin making the required investments by the end of 2007, these forecasted cash flows extend to the end of the year 2014.

49. We also include in the financial model a terminal value. The terminal value allows for the inclusion of the value of future cash flows occurring beyond the 7 year projection period of our model. In particular, the terminal value is the present value, at the end of our model, of all future cash flows from the investment. One of the primary factors in determining the appropriate terminal value is the length of time that the cash flows from the investment are expected to continue. In valuing projects that are expected to continue in perpetuity, such as the valuation of a firm, a perpetuity

[31] Based on interviews with DIRECTV officials, we assume that the cost of purchasing and launching a new satellite will be paid over the course of 30 months.

growth model often is used to determine the terminal value. A perpetuity growth model assumes that cash flows continue to increase (or decrease) at some constant rate forever.

50. In valuing individual projects rather than a firm as a whole, a perpetuity growth model may not be appropriate. This is because individual projects may yield financial returns for only a finite period of time. If we apply a perpetual growth model to value DIRECTV's investments in providing satellite local-into-local in the remaining 60 markets, this would imply that if DIRECTV now committed to offer the service, the demand for DIRECTV would forever be significantly higher in the 60 DMAs. In particular, the gaps illustrated in Exhibits 6(a) and 6(b), which show DIRECTV's additional subscribers if it offered satellite local-into-local, compared to if it did not at the present moment commit to offering the service, would continue forever. This is unrealistic because it assumes that DIRECTV will *never* offer satellite local-into-local, or other potentially superior substitute services in these markets, such as HD local-into-local. Accordingly, it unrealistically assumes that DIRECTV will forever be at a competitive disadvantage in these markets. Because significant technological and market changes are expected to evolve over time in this industry, it is likely that at some point in the future after 2014 (say, *e.g.*, 2020), technological and market conditions will make it possible for DIRECTV to offer satellite local-into-local, and possibly HD local-into-local, to some or all of the 60 remaining DMAs in a cost effective manner. When DIRECTV does offer SD or HD local-into-local in the 60 remaining markets, the profits from its current investments in offering the local-into-local will end. Thus, it is not sensible to continue the cash flows from offering satellite local-into-local in perpetuity.

51. These considerations lead us to conservatively assume a terminal value equal to 5 times the cash flows during the last year of our model (2014). When

discounted at a 12 percent rate, a terminal value of 5 assumes that the cash flows during the last year of the model will persist for another 8 years. Because our model forecasts cash flows for 7 years, the additional 8 years captured by this terminal value implies that cash flows are expected to extend to the end of the year 2022. In Section VI.C., we evaluate the sensitivity of the net present value estimates by using alternative terminal values.

## V. The Expected Net Present Value of Providing Local-into-local in the Remaining 60 DMAs Is Negative $251 Million

52. The financial model which incorporates the assumptions described above is contained in Appendix N. The footnotes to these appendices contain more detailed notes on each of the assumptions made and the calculations involved.

53. The financial model indicates that the expected net present value of providing local-into-local in the 60 remaining DMAs is negative $251 million. This means that extending satellite local-into-local to these markets would result in a significant cost to DIRECTV. In particular, the incremental revenues from providing local-into-local via satellite in the remaining 60 DMAs are nowhere near large enough to justify the large investments necessary to provide the service.

## VI. Sensitivity Analysis

54. We assess the sensitivity of the profitability estimate to various estimates and assumptions used in the financial model. These assumptions fall into three main categories: (1) the statistical estimates of the market impact of satellite local-into-local, (2) the assumption that EchoStar will offer local-into-local in all DMAs, and (3) financial

factors used in the model (the discount rate and the terminal value). This sensitivity analysis, which is described below, strongly supports the conclusion that under a wide range of estimates and assumptions, offering satellite local-into-local would be very unprofitable for DIRECTV.

### A. Sensitivity analysis of market impact estimates

55. One significant advantage of conducting regression analysis of the expected market impact of local-into-local satellite service is the ability to assess the precision of the estimated effects. The statistical precision of the market effects of providing satellite local-into-local is reflected in the standard errors of the regression coefficients.[32] Using the standard errors of the estimated market impacts of the provision of satellite local-into-local, it is possible to estimate a statistical distribution of the profitability of offering local-into-local satellite service. It should be noted that this does not represent a statistical confidence interval for all of the assumptions in the model, but only the statistically derived market impact estimates. That is, the confidence intervals assume that all other assumptions in the model are accurate, and that all potential errors come from the statistical estimates of the market impact of satellite local-into-local. Regardless, these confidence intervals are useful in assessing the sensitivity of the profitability estimate to the estimates of the market impact.

56. The regression results indicate that the standard error of the market impact, in terms of the effect on the profitability of providing local-into-local via satellite, is approximately $11.6 million. This implies that there is a 95 percent

[32] For instance, the standard error of the effect of DIRECTV launching satellite local-into-local on gross additions when EchoStar already provides local-into-local is 0.04 percentage points. This standard error implies that there is a 95 percent probability that the effect of DIRECTV's launch on gross additions is

probability that the expected net present value of launching satellite local-into-local in the 60 DMAs is between negative $273.9 and negative $227.1 million. This statistical distribution of the profitability of providing local-into-local via satellite in the remaining 60 DMAs is illustrated in Exhibit 7.

**B. Sensitivity analysis of EchoStar provision of satellite local-into-local**

57. As we discuss above, an assumption in the model is that EchoStar will not extend satellite local-into-local to any additional markets. Thus, our model assumes that EchoStar will offer satellite local-into-local in the 29 markets in which it currently offers the service, but will not extend the service to the other 31 DMAs in which it currently does not offer the service. In this section, we test the sensitivity of our profitability estimate to this assumption by alternatively assuming that EchoStar will expand its satellite local-into-local service to the 31 DMAs in which it currently does not offer the service, and that it will do so before DIRECTV offers satellite local-into-local.

58. For the 29 DMAs in which EchoStar currently offers satellite local-into-local service, the estimation of the market impact of DIRECTV local-into-local via satellite is the same as in our primary model described above. For the 31 DMAs in which EchoStar currently does not offer satellite local-into-local, we assume that EchoStar will offer the service before DIRECTV's launch and, therefore, the estimated DIRECTV impact will be the same as in the 29 markets in which EchoStar already offers the service. In particular, the regression results indicate that DIRECTV's launch of satellite local-into-local is associated with a [redacted] increase in gross additions in the first [redacted] following the launch. After these initial [redacted] the

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between [redacted] percentage points and [redacted] percentage points. Similar statistical confidence intervals can be calculated for other factors that were estimated statistically.

effect of local-into-local is [redacted] percentage point increase. The launch of DIRECTV local-into-local via satellite in these markets is also estimated to lead to a [redacted] percentage point reduction in disconnects in DMAs.

59. For these 31 markets, it is also necessary to estimate DIRECTV's gross additions and disconnects if EchoStar did begin to offer satellite local-into-local service but DIRECTV did not. In order to do this, we use the results of the regression analysis described above. In particular, the coefficient on the *ESinDTVout* variable reflects the impact of EchoStar's provision of satellite local-into-local on the demand for DIRECTV in markets where DIRECTV did not offer the service at the time of EchoStar's launch. This coefficient indicates that the launch of EchoStar satellite local-into-local tends to increase DIRECTV's disconnects by [redacted] basis points (see Appendix G(2)). This is significant at a 99 percent level of confidence. The effect of EchoStar satellite local-into-local on DIRECTV gross additions is slightly positive, but statistically insignificant (see Appendix G(1)). Accordingly, we assume that it has no effect on DIRECTV gross additions. These effects of EchoStar local-into-local service on DIRECTV's gross adds and disconnects are added to the average gross additions and disconnects over the last 12 months for each of the 31 DMAs to obtain the baseline estimates for these markets.[33]

60. The financial model under the alternative assumption that EchoStar will offer satellite local-into-local in the remaining 31 DMAs before DIRECTV is contained in Appendix P. The results of the financial model under this assumption is that the net present value of DIRECTV's investment would be negative $187 million (Exhibit 8). This compares with our DIRECTV profitability estimate of negative $251 million when EchoStar is assumed not to offer satellite local-into-local in the remaining 31 DMAs.

[33] Appendix O summarizes the market impact estimates and methodology assuming that EchoStar will extend its satellite local-into-local service to additional DMAs.

There is a higher profitability for DIRECTV of offering satellite local-into-local when EchoStar also offers the service because it is more profitable to DIRECTV to reduce disconnects than to add new subscribers. Examining Exhibits 6(a) and 6(b) once again, we can see that DIRECTV offering satellite local-into-local reduces what would otherwise be higher disconnects when EchoStar is offering the service (Exhibit 6(a)). In contrast, offering satellite local-into-local where EchoStar does not offer the service primarily has the effect of increasing gross additions (Exhibit 6(b)). Reducing disconnects by one subscriber is much more profitable than increasing gross additions by one subscriber because there are significant subscriber acquisition costs.

### C. Sensitivity analysis of financial factors

61. Other important assumptions in the model pertain to the financial factors used, namely, the discount rate and terminal value. In order to test the sensitivity of the profitability estimates to the discount rate and the terminal value, we estimated the expected profitability using alternative assumptions regarding these financial factors. In particular, we used discount rates of [redacted] and [redacted] in addition to the [redacted] used in the model above. The [redacted] discount rate is roughly the value of DIRECTV's weighted average cost of capital. This value is a lower bound estimate of the discount rate. As described above, individual projects, such as providing local-into-local service to the smallest DMAs in the U.S., can be significantly more risky than the firm as a whole. Accordingly, it is often appropriate to use discount rates for individual projects that are higher than a firm's WACC. Exhibit 9 shows that the net present values of providing satellite-local-into-local service, assuming [redacted] and [redacted] rates, are negative $224 million and negative $269 million respectively.

62. We also used different terminal values in the financial model. In particular, we estimate the model using terminal values equal to 4 and 6 times the cash flows in the last forecasted period, 2014. Using a discount rate of 12 percent, a terminal value of 4 assumes that the cash flows during the last forecasted year of our model will continue for almost another 6 years (to the end of year 2020). The terminal value of 6 assumes that the cash flows during the last forecasted year of our model will continue for almost another 12 years, to the end of year 2026.

63. Exhibit 10 shows the net present values of providing satellite-local-into-local service under different permutations of the financial assumptions. This includes the 3 different values of the discount rate and the 3 terminal values, which makes up 9 permutations. Exhibit 10 shows that the net present values of these permutations range between negative $165 million to negative $309 million.

64. Exhibit 11 also combines alternative estimates of the market impact of DIRECTV local-into-local via satellite. In particular, we use the estimates of the market impact assumptions described in Section VI.A. above, which yield profitability estimates that are two standard deviations away from our estimated negative $251 (*i.e.* negative $273.9 and negative $227.1 million). These 3 additional estimates, combined with the 9 permutations above, yield 27 profitability estimates. The net present values of providing satellite-local-into-local service under these permutations of the financial and market impact assumptions, shown in Exhibit 11, range between negative $133 million to negative $326 million. These values represent the upper and lower bounds of the profitability estimates using assumptions intended to test the sensitivity of the model. The expected cost to DIRECTV of offering satellite local-into-local in the remaining 60 markets is negative $251 million, which is the net present value of the model described in Sections II to V.



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## VII. Conclusions

65. It is unambiguous that providing local-into-local via satellite services in the 60 remaining DMAs would be very costly and unprofitable to DIRECTV. The estimated net present value for DIRECTV to do so is negative $251 million.

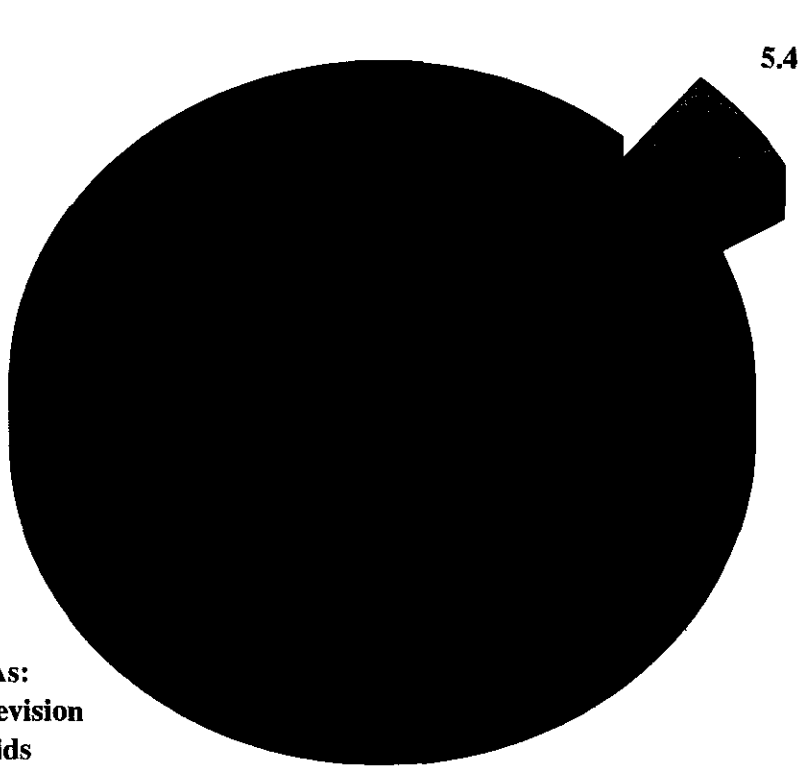
66. The significant costs to DIRECTV of providing satellite local-into-local service in the 60 remaining DMAs must be weighed against the potential consumer benefits. Since the 60 markets in which DIRECTV does not now offer or plan to offer local-into-local via satellite service comprise a small portion (5.4 percent) of total U.S. television households, and only 2.5 percent of consumers live in DMAs that do not have local-into-local satellite service from either DIRECTV or EchoStar, the potential consumer benefits are likely to be fairly limited. On the other hand, if the large investments and efforts necessary for DIRECTV to expand satellite local-into-local service delays DIRECTV investments and efforts in expanding high-definition local signals in other markets, consumers who live in larger DMAs covering 94.6 percent of television households would be harmed. Moreover, this reallocation of resources could prevent DIRECTV from fully supporting the important national objective of completing the DTV transition and extending its benefits to more viewers throughout the United States.

67. Furthermore, because the cost burden to DIRECTV of providing satellite local-into-local in the remaining 60 DMAs would not be incurred by EchoStar, DIRECTV would be placed at a competitive disadvantage. In particular, if the DIRECTV investments and efforts necessary to provide local-into-local to the 60 DMAs would detract from DIRECTV investments or efforts in launching high-definition local service or other advanced services, DIRECTV would be significantly hampered in its

ability to compete in the MVPD market. Since the introduction of digital cable has provided cable operators with an inherent advantage over Direct Broadcast Satellite in offering high-speed Internet, telephone, and video-on-demand services, any additional competitive disadvantage placed on DIRECTV has the potential to decrease overall competition in the MVPD market.

# Exhibit 1

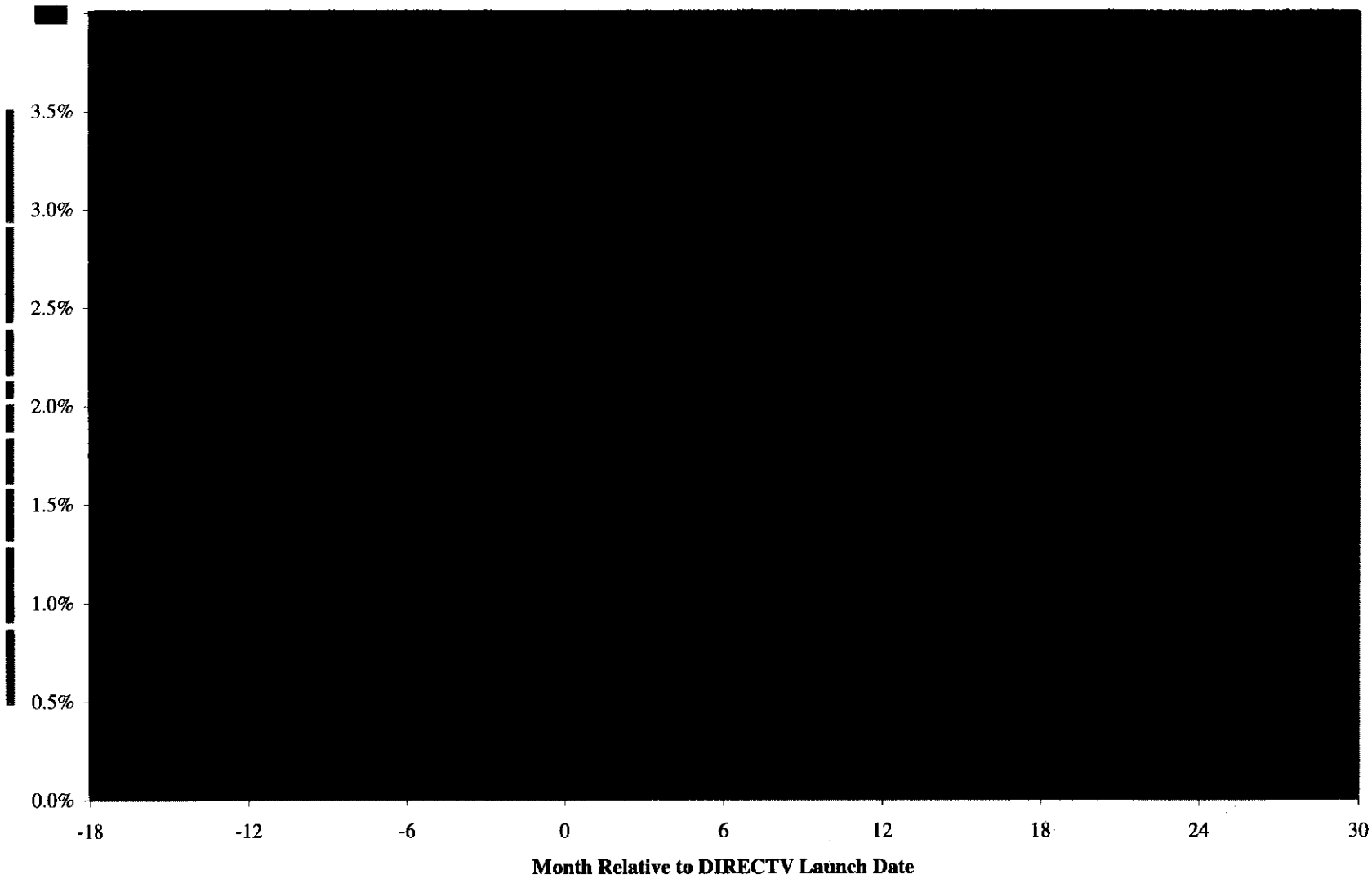
## DIRECTV Provides Satellite Local-Into-Local Service in 150 DMAs Covering 95% of TV Households




es: Numbers include 8 DMAs in which DIRECTV plans to launch satellite Local-Into-Local service by the end of 2007 (Bangor ME, Beaumont-Port Arthur TX, e-Bozeman MT, Dothan AL, Harrisonburg VA , Laredo TX, Odessa-Midland TX, Palm Springs CA). Number of DMAs where DIRECTV provides satellite Lo -Local is calculated as of the end of the year. Percent of TV Households is calculated using 2006 data.

# Exhibit 2(a)

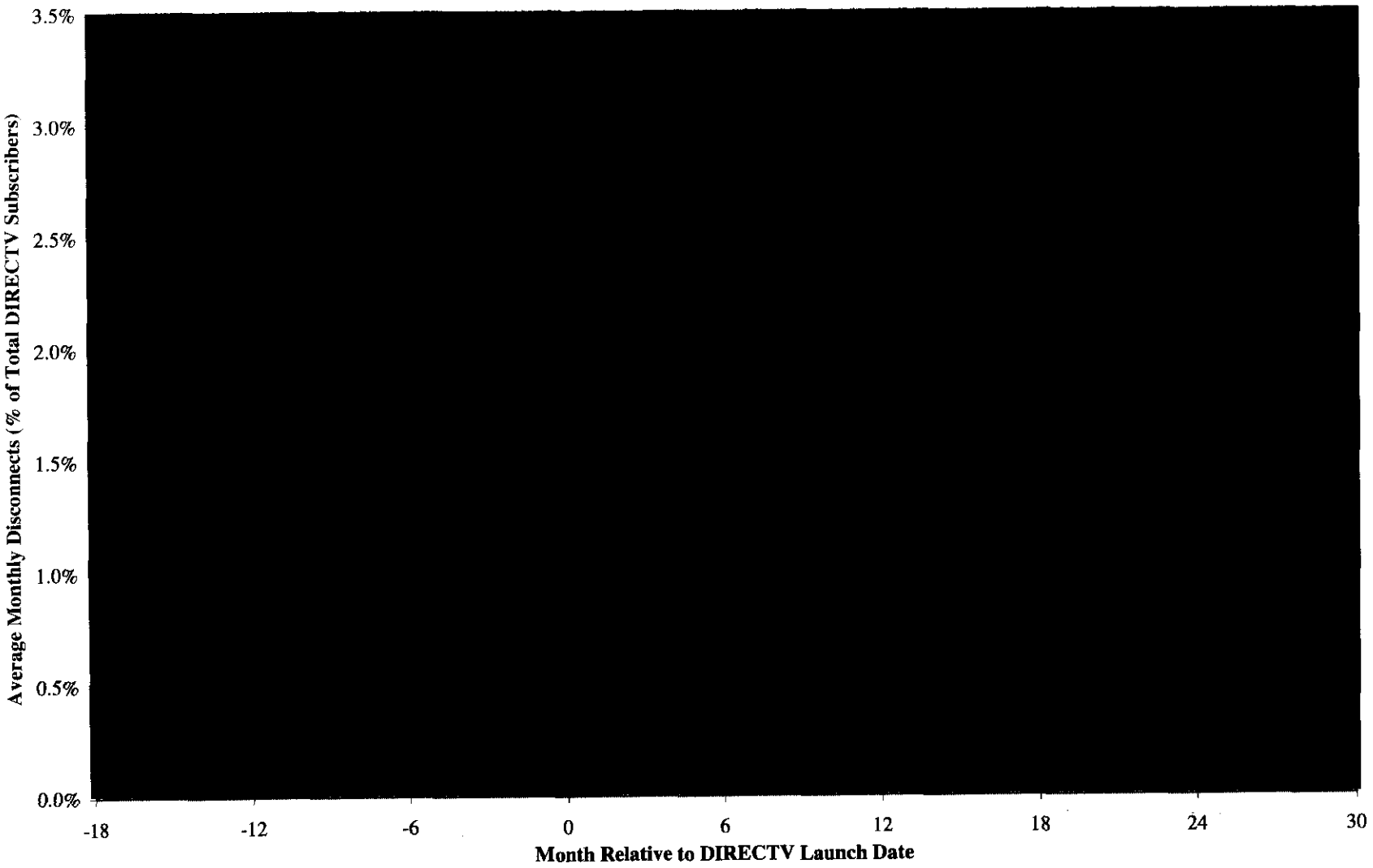
## Average Gross Adds Before and After DIRECTV Launched Satellite Local-Into-Local Service




Notes: Data includes 52 DMAs where DIRECTV launched Local-Into-Local via satellite between January 2003 and March 2006 and EchoStar launched Local-Into-Local via satellite at least 6 months earlier. Dashed line reflects 12-month trailing moving average.

# Exhibit 2(b)

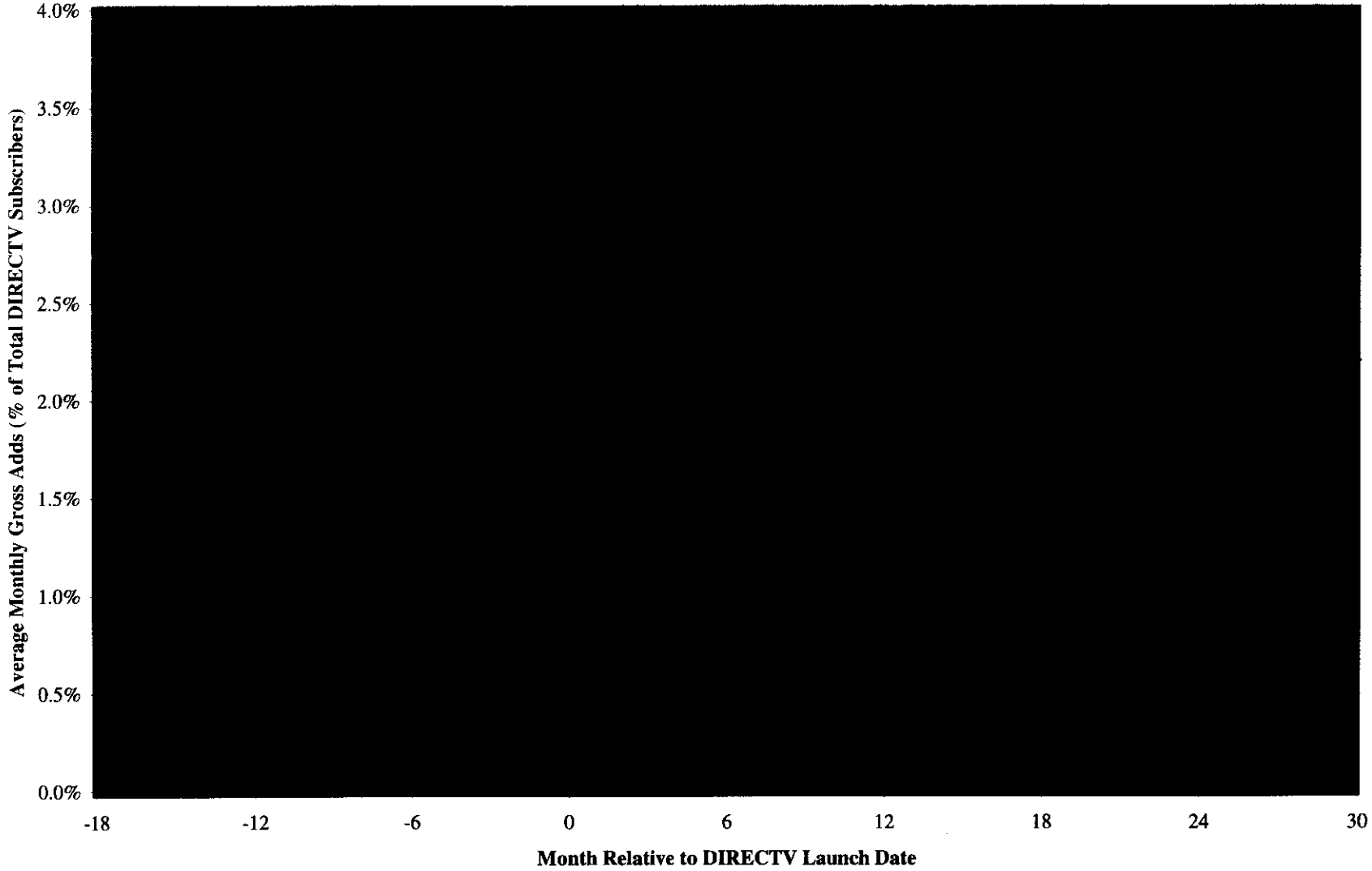
## Average Disconnects Before and After DIRECTV Launched Satellite Local-Into-Local Service




Notes: Data includes 52 DMAs where DIRECTV launched Local-Into-Local via satellite between January 2003 and March 2006 and EchoStar launched Local-Into-Local via satellite at least 6 months earlier. Dashed line reflects 12-month trailing moving average.

# Exhibit 2(c)

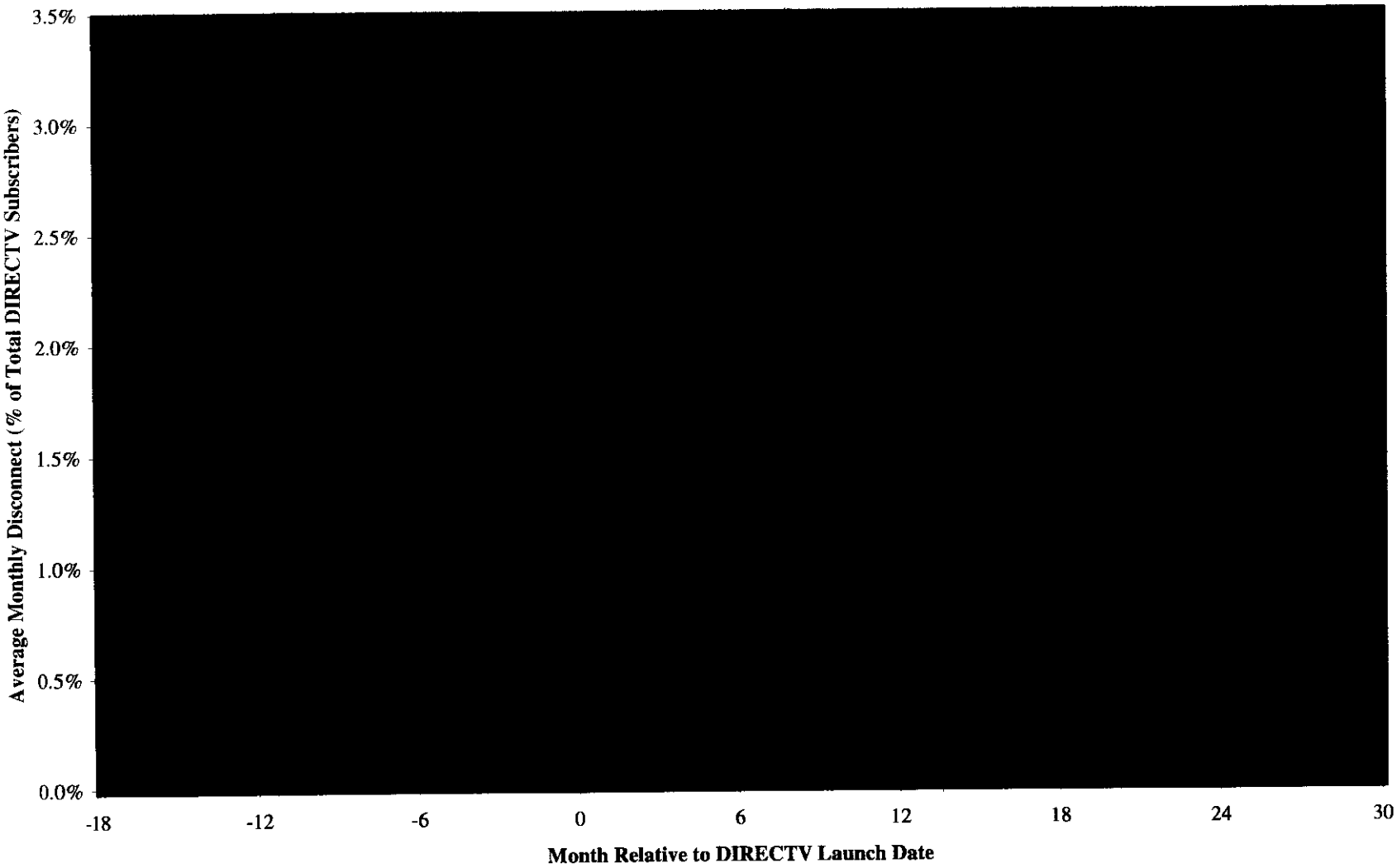
## Average Gross Adds Before and After DIRECTV Launched Satellite Local-Into-Local Service




Notes: Data includes 52 DMAs where DIRECTV launched Local-Into-Local via satellite between January 2003 and March 2006 and EchoStar launched Local-Into-Local via satellite at least 6 months earlier.

# Exhibit 2(d)

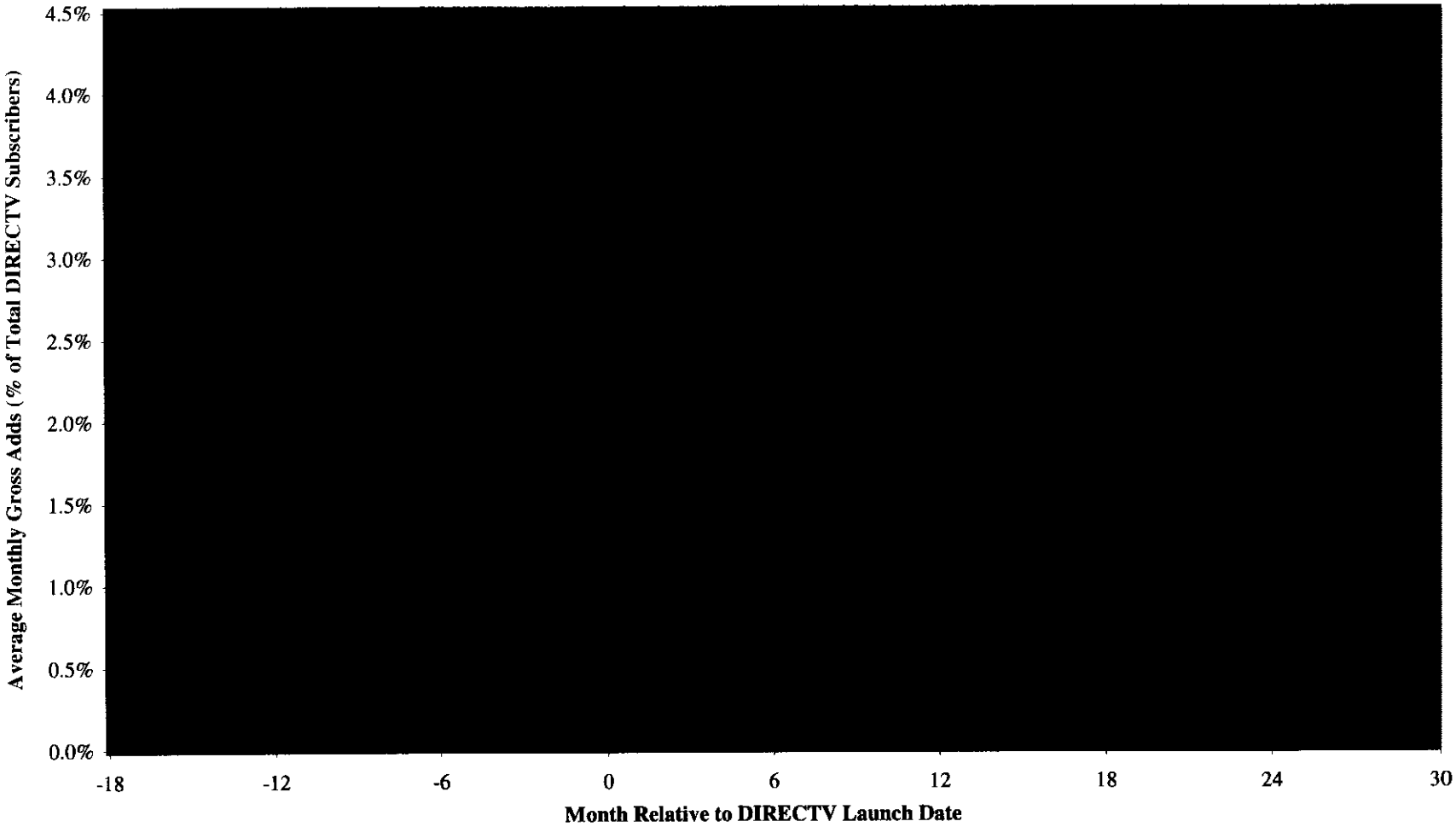
## Average Disconnects Before and After DIRECTV Launched Satellite Local-Into-Local Service




Notes: Data includes 52 DMAs where DIRECTV launched Local-Into-Local via satellite between January 2003 and March 2006 and EchoStar launched Local-Into-Local via satellite at least 6 months earlier.

# Exhibit 3(a)

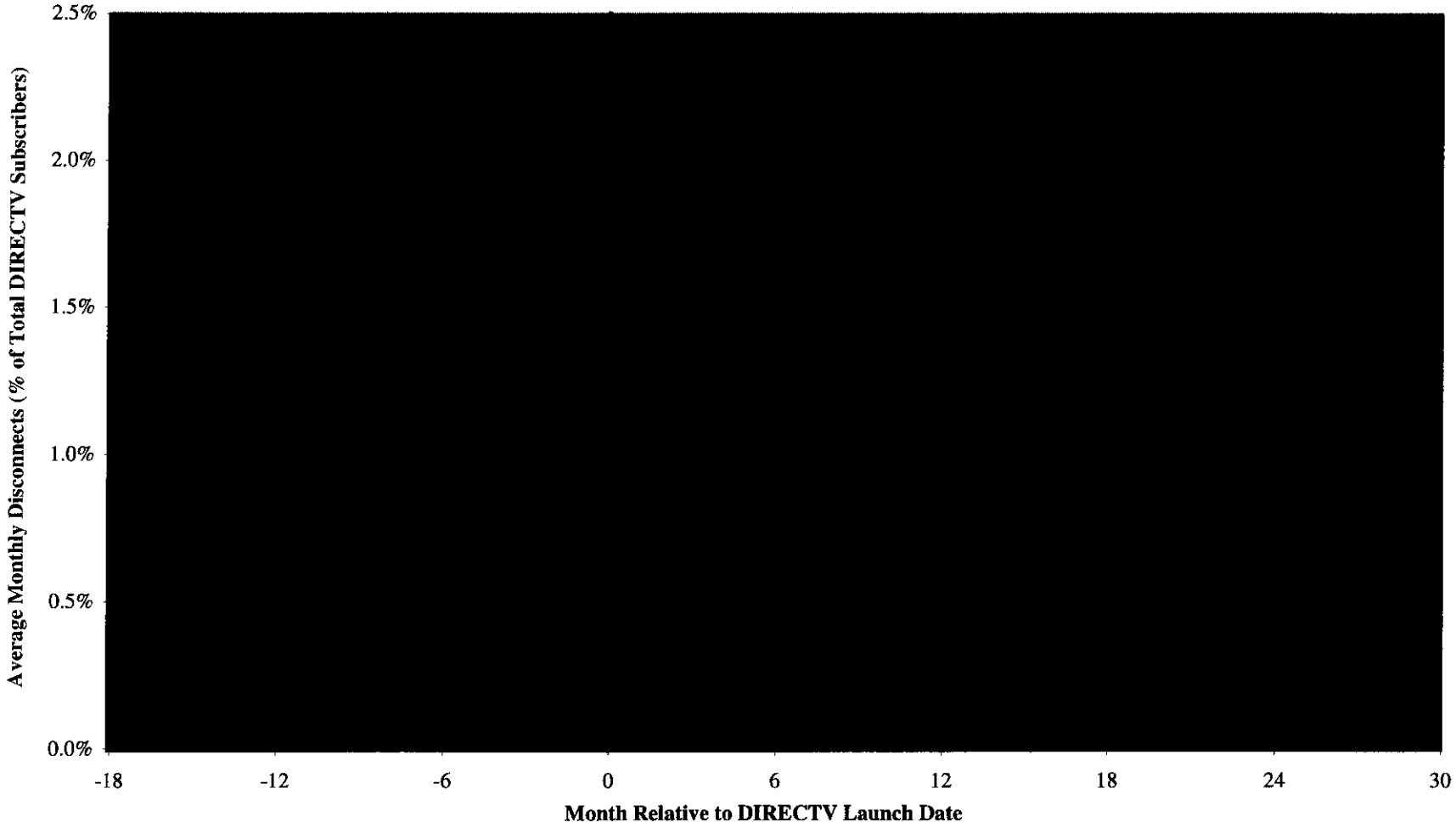
## Average Gross Adds Before and After DIRECTV Launched Satellite Local-Into-Local Service




Notes: Data includes 12 DMAs where DIRECTV launched Local-Into-Local via satellite between January 2003 and March 2006 and at least 6 months earlier than EchoStar launched the service. Dashed line reflects 12-month trailing moving average.

# Exhibit 3(b)

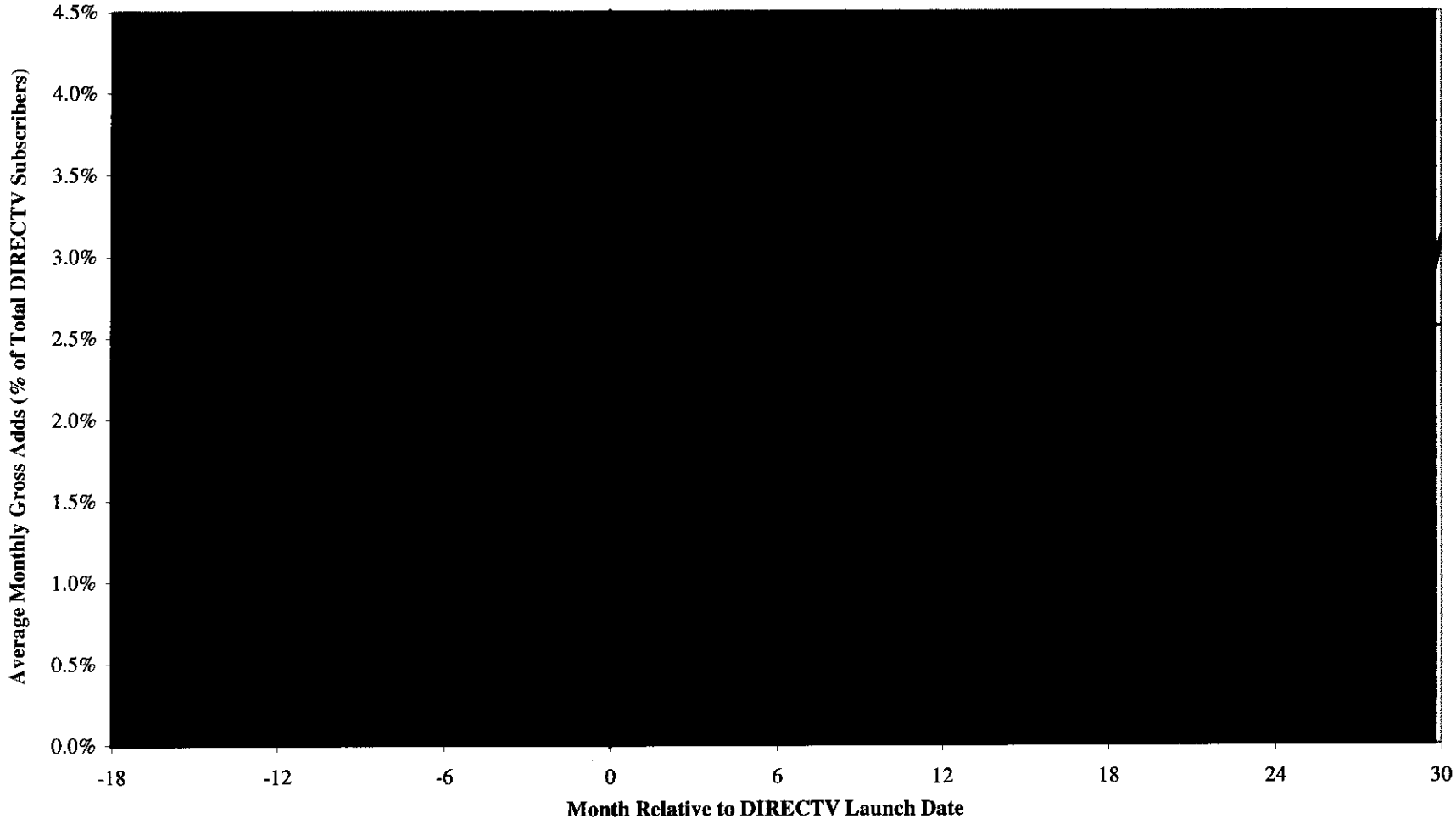
## Average Disconnects Before and After DIRECTV Launched Satellite Local-Into-Local Service




Notes: Data includes 12 DMAs where DIRECTV launched Local-Into-Local via satellite between January 2003 and March 2006 and at least 6 months earlier than EchoStar launched the service. Dashed line reflects 12-month trailing moving average.

# Exhibit 3(c)

## Average Gross Adds Before and After DIRECTV Launched Satellite Local-Into-Local Service




Notes: Data includes 12 DMAs where DIRECTV launched Local-Into-Local via satellite between January 2003 and March 2006 and at least 6 months earlier than EchoStar launched the service.

# Exhibit 3(d)

## Average Disconnects Before and After DIRECTV Launched Satellite Local-Into-Local Service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